

**Date of RFP  
4/5/2013**

**New Jersey Department of Transportation  
Bureau of Research  
RESEARCH PROJECT  
Request for Proposals  
2013 Program**

**Closing Date  
5/14/2013**

**State Channel Maintenance Capacity**

**Project No. 2013-10**

(Proposals must be prepared in accordance with NJDOT's *Information and Instructions for Preparing Proposals*. Please visit:

<http://www.state.nj.us/transportation/refdata/research/pdf/techpropresproj.pdf>

*Revised Proposal Evaluation Forms are available for your information on the website.)*

Proposals will be based on the merit of the information contained in the proposal. Budgets will be evaluated separately. Please place three (3) copies of the budget for this project in a separate sealed envelope.

**1. RESEARCH PROBLEM STATEMENT, BACKGROUND AND OBJECTIVES**

Once emergency response to Super Storm Sandy is complete, the state will be left with a channel maintenance need of historic proportions. A lack of easily accessible, easily permittable, low-cost capacity complicates the development of a channel maintenance plan.

Significant data now exists to enlighten the maintenance planning effort, but limited options and limited resources leave the state with few realistic short-term options. A reasonable amount of information and data, though much of it old, suggests that anoxic "dredge holes" may provide an opportunity to provide an environmental betterment and significant amounts of dredged material placement capacity.

**2. TASKS**

[Provide a listing of appropriate general tasks divided into phases based on types of work (e.g., laboratory, field) or by year (e.g., year 1, year 2) or other appropriate milestones]

*The NJDOT is seeking the insight of proposal responders on how best to achieve the research objectives. Proposers are expected to describe a research effort that can realistically be accomplished as expeditiously as possible. Proposals must present the proposers' current thinking in sufficient detail to demonstrate their understanding of the problem and the soundness of their approach for conducting the required research.*

**PHASE I – Literature Search**

Conduct a literature search of the current state of the practice.

After the award of the project, a more comprehensive literature search should be conducted. At the completion of this literature search, the PI will make a presentation to the Research Project Selection and Implementation Panel to discuss their findings and to discuss the appropriate research approach.

**PHASE II – Research Approach and Anticipated Results**

Clear description of how you will solve the problem and implement anticipated findings. Work may be divided into phases (e.g., Laboratory, Field or Year 1, Year 2) as necessary to clarify tasks. *Exit Criteria* must be developed during this phase.

Perform a literature review of government and academic sources to determine the location and/or aerial extent of borrow pits in the Atlantic coastal basin of NJ. US Army Corps of Engineers and NJ Tidelands Resource Council are likely sources of important information. Perform interviews when necessary to obtain anecdotal information that could lead to identification of sites not in the public record.

Perform bathymetric surveys of candidate sites, up to a maximum of 20, selected in concert with NJDOT and NJDEP. Surveys are to be performed using multibeam sonar or single beam sonar on 25 foot transects. Overlap the feature by a minimum of 100 meters, if possible, to illustrate proximity (or lack thereof) to intertidal/subtidal shallows. Produce survey maps in standard 2x3 format, showing shore features, referenced to mean lower low water (MLLW), and signed by a NJ licensed surveyor. Show cross sectional depths on both long and short axis of feature. Calculate and report on aerial extent of feature, maximum depth, and capacity for dredged material, boat/barge access and potential for aquatic resources.

Perform a geospatial analysis utilizing the NJDOT/OMR database of state channels to determine the number and mileage of channels and potential need for dredging within a reasonable transport distance to each site.

Determine the suitability of each identified site for placement of dredged material based on collected data. Determine appropriate methodology for placement at each site and the need for any pre-placement dredging or engineering. From this analysis, rank the sites in order of suitability for further evaluation.

Perform biological and water quality surveys of candidate sites, up to a maximum of 5. Sample for dissolved oxygen, temperature and salinity at three locations across the long axis of each site, being sure that one of the locations is in the deepest part of the feature and the other two represent different depths. For each location, prepare dissolved oxygen, salinity, and temperature profiles at 1 meter intervals. At the same locations chosen for water quality profiles, take a benthic grab sample for community structure. Take one additional sample outside the feature as a reference. Develop IBI scores according to DEP procedures for each location. Evaluate the site for presence of submerged aquatic vegetation (SAV). Prepare SAV maps by species that illustrate the extent of SAV beds in the feature and in the surrounding area up to 100 meters from the edge of the feature. Evaluate the potential for threatened and endangered species to inhabit/utilize the habitat in and around the site that might prevent or impede its use.

Develop a scope for the use of each site including the capacity, final depth of placement, method of placement, timing of placement and the estimated length of time required to complete based on material availability. This scope should be detailed enough to support an application to the NJDEP Office of Dredging and Sediment Technology and the US Army Corps of Engineers.

### **3. IMPLEMENTATION AND TRAINING PLAN**

The PI must meet with the Research Project Selection and Implementation Panel (RPSIP) and other NJDOT units to present the findings and as appropriate train these personnel in the use the project results.

**The PI will develop an implementation plan as per the guidelines provided by NJDOT Research Bureau.**

**4. DELIVERABLES:**

[List of minimum deliverables necessary to complete the project]

- Presentation of Summary of Literature Search Results
- Discussion to Support and Refine the Project Tasks
- Project work plan.
- Technical Memorandum on the survey results
- Technical memorandum on the measures that are working or not working
- Technical memorandum on actions taken
- Interim Status reports suitable for Senior Leadership if required
- Quarterly Reports and Final report with appropriate tables, graphs and charts in hard copy version, PDF file format, Word, and on CD ROM. Two copies plus one per RSIP member of each presentation, technical memorandum, draft final report and Final Report (plus 10 copies).
- The Final Report and Tech Brief are due three (3) months before the end date of the project to allow time for review by the Research Project Selection and Implementation Panel. The Final Acceptance will be granted upon receipt of ten copies of the approved final report.

**5. CONTRACT TIME:**

The PI must provide the anticipated research study duration based on the proposed tasks. Consideration should be given to potential impediments so that adjustments are incorporated into the schedule minimizing the need for time extensions.

**A 6 - 12 months time frame would be preferred.**

**6. CONTACTS:**

Questions on this topic **shall not** be directed to any Research Project Manager, Research Customer, or any other NJDOT person. All questions are to be directed to Camille Crichton-Summers by sending an e-mail to [Camille.CrichtonSummers@dot.state.nj.us](mailto:Camille.CrichtonSummers@dot.state.nj.us), or by phone (609-530-5966).

A meeting may be scheduled with interested parties after the RFP's are distributed to refine the objectives and deliverables and to promote a better understanding of the research needs. **This must be requested on or before April 19, 2013.**

**7. DEADLINE**

**Proposals (10 single-bound copies) are due at the NJDOT Bureau of Research  
no later than 5:00 p.m. on May 14, 2013**

**Authorization to Begin Work: August 16, 2013, approximate**

**8. PROPOSAL DELIVERY INSTRUCTIONS:**

**For private, paid messenger services such as Federal Express, DHL, UPS, etc., or for hand-carried deliveries:**

2013 PROPOSAL-NJDOT  
New Jersey Department of Transportation  
Bureau of Research  
1035 Parkway Avenue  
Trenton, New Jersey 08625-0600

**For U.S. Postal Service mail:**

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